SUNSHINE PRECIOUS
METALS INCORPORATED

A Wholly-Owned Subsidiary of

ZUMA PROJECT
AMENDMENT

M/049/009

(INVOLVES E/049/021)

1 OF 2 COPIES
- REFERS TO DOG # U-91-4-0514

SUNSHINE MINING COMPANY

15988 Silver Pass Road
P.O. Box 250
Eureka, Utah 84628
(801) 433-6854
Fax (801) 433-6639

November 5, 1991

RECEIVED
NOV 0 6 1991
DIVISION OF
OIL GAS & MINING

Wayne Hedberg, Supervisor
Division of Oil, Gas and Mining
Suite 350, 3 Triad Center
355 West North Temple
Salt Lake City, Utah 84180-1203

ZUMA PROJECT
AMENDMENT

Dear Mr. Hedberg:

Sunshine Mining Company is currently operating in the East Tintic Mining District under reclamation plan number ACT/049/009 which has been approved by your division. This plan is currently bonded for the sum of $737,000 (Seven Hundred Thirty-Seven Thousand and no/100) dollars. This surety bond number is 18S 100125197 and is on file at your division on a MR FORM 5. Sunshine does not wish to change the sum of this current bond but is desirous of applying part of the above bonds amount to another area of the property. Attachment A outlines the individual areas we currently have approved through your division along with their estimated reclamation costs. Two bonded areas, the Hunter shaft and tailings pond have not had any work completed to date.

Sunshine is currently starting the process by changing the "Permit To Conduct Exploration" for this area to include this pit in our operations by revising our current mining operations and reclamation plan with your division.

Sunshine asks that you review our submitted "Revised Mine Plan." We realize that this area is not currently bonded but are willing to reassign part of our bond to this area with your approval. We have contacted the company which carries our current reclamation bond and they have indicated they are willing to transfer part of the bond to cover the Zuma pit. The bonding company has requested that your division approve this transfer, in writing, before they will formally approve the reassignment of part of our bond.

If you have any questions or would like additional information please feel free to contact me.

Very truly yours,

Glenn Mellor

Glenn Mellor
Senior Geologist

GMM:lrl
Encl

RECEIVED
NOV 0 6 1991
DIVISION OF
OIL GAS & MINING

NOTICE OF INTENTION TO REVISE MINING OPERATION

Name of Operator/Applicant:	Sunshine Mining Company
Name of Company/Corporation:	Sunshine Mining Company
Address:	P. O. Box 250 Eureka, Utah 84628
Phone:	801-433-6854
Name of Mine/Project:	Zuma Pit
Previously Assigned File Number:	Eureka Operations ACT/049/009
Location Proposed Project:	Utah County SE 1/4 of NW 1/4 Section 21
Township:	T10S, R2W, S.L.B.& M.

Sunshine Mining Company is currently shipping alumina clay from the Zuma pit to Ash Grove Cement West's Inc. cement plant located near Leamington, Utah. All shipments to date have been from existing mine waste rock dumps located in and adjacent to the old pre 1975 pit. Ash Grove has notified Sunshine the alumina clay in this pit is acceptable to use for processing cement and have indicated they would like to purchase 40,000 to 60,000 tons of this material on an annual basis. To date, Sunshine Mining Company has been operating the Zuma pit on a "Permit To Conduct Exploration" so Ash Grove could bulk sample and test this clay during actual production at their plant. Sunshine has determined a viable market now exists and would like to revise our current mine plan to include this new area. During personal phone calls to D.O.G.M. it was suggested that Sunshine incorporate this new project into our previously permitted areas by using a "Notice To Revise Mining Operations." Sunshine Mining Company would like to revise our permit to include this area. The following will address the information required by your division for this proposed revision.

Ownership of Land Surface:

All land involved in the proposed development of the alumina material is on private-fee simple land. Right of entry is granted through a mining lease and agreement with owner of patented mining claims.

Zuma Area Description:

The Zuma area is located on the east flank of the Tintic mountains in the southwest portion of the Jordan river drainage basin. A intermittent drainage system is located near this area which empties onto a alluvial covered pediment along the western margin of southern Goshen valley.

At Elberta, located in Goshen valley east of the Zuma area, the average annual precipitation is 10.50 inches and average pan evaporation rate is 37.30 inches. Temperatures range from -17F to +104F with approximately 127 frost free days. Winds are predominately

from the southwest averaging 5-10 mph with peaks of 60 mph when storm fronts pass through the area.

The existing Zuma pit area is located in the pinyon-juniper woodlands at a elevation of approximately 6400 feet. Clearings are also interspersed through the area and contain sagebrush-grass vegetation. The sandy gravely loam soils are derived from a volcanic parent material or a mixture of sedimentary rocks. Wildlife populations are those common to the Basin and Range Province.

Maps, Drawings and Photographs:

The following maps have been previously submitted to your division.

1) Topo map - Eureka quadrangle scale 1:24,000

2) Blue print showing property lines in relationship to areas proposed to be utilized for mining alumina clay. scale: 1 inch = 2000 feet

3) Topo map showing
   a. existing permit areas
   b. proposed areas to be developed
   c. existing roads - access
   d. surface drainage
   scale: 1 inch = 400 feet

4) Photographs of Zuma clay area

Sunshine Mining Company proposes to sell a high alumina clay to Ash Grove Cement West's Leamington, Utah plant. The clay will be shipped from an existing pit previously mined by U.S. Energy in early to mid 1970's. At the cessation of U.S. Energies activities in the Zuma pit large waste rock dumps were left along the north pit wall and the pit bottom that contain clays with alumina that is suitable for Ash Grove's cement processing plant. All production, to date, has come from the removal of existing mine dumps, but future production will commence in the pit as the dumps are depleted. All dump or mined clays will be loaded directly on trucks and shipped to the site of the cement plant. No onsite crushing, upgrading or processing will be required.

Chemical Analysis of Alumina Clays:

A short hole drilling program was conducted on the old existing pit waste rock dumps and in the pit to determine the quality of the material to be shipped to Ash Grove. A airtrack drill with a portable compressor was used to complete the holes. All available analysis for the drill cuttings are reported as follows:

Hole No.	Interval	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	SO3 %	Na2O %	K2O %
117	0'-12'	28.38	24.47	28.41	1.72	0.14	0.05	0.13	0.21
117	12'-24'	35.43	31.85	15.56	0.51	0.01	0.00	0.14	0.06
117	24'-36'	36.11	32.23	15.30	0.35	0.05	0.00	0.12	0.03
118	12'-24'	36.17	32.95	13.10	0.34	0.03	0.03	0.07	0.05
118	24'-36'	35.27	30.25	19.27	0.17	0.00	0.06	0.09	0.13
119	12'-24'	27.25	23.05	33.50	0.40	0.02	0.08	0.08	0.05
119	24'-36'	21.45	6.80	6.28	20.21	13.69	0.04	0.06	0.27
102	0'-12'	42.80	25.83	11.91	0.57	0.85	1.25	0.03	1.97
102	12'-24'	43.52	24.45	11.26	1.21	1.38	1.01	0.02	1.91
115	0'-12'	8.86	2.23	0.90	39.21	14.07	0.12	0.16	0.09
115	12'-24'	6.70	1.91	4.70	41.58	10.42	0.08	0.13	0.05
307	12'-24'	19.54	6.56	3.01	40.42	1.00	0.07	0.07	0.63

Acid Base Potential:

Four samples from different areas of the pit were taken and submitted to NPI Soil Testing in Salt Lake City, Utah. A copy of their test results is attached, exhibit B, to the back of this report.

The samples were taken from:

1) the north wall of the pit
2) the east end of the pit
3) the upper waste rock dump
4) the south wall of the pit

Existing Permit Areas: (Summary)

Sunshine Mining Company currently has the following areas bonded with your division in the East Tintic Mining District.

Bond Area	PERMIT Acreage	Disturbed Acres	Reclaimed Acres	Costs
Apex	2.8	2.1	0.1	$ 67,750.00
Trixie	11.4	PROJECTED 8.55	4.75	37,320.00
*Hunter Shaft	10.0	7.17	7.17	48,100.00
Burgin Mill	57.9	29.40	29.40	129,600.00
*Tailings Pond	41.37	28.67	28.67	39,310.00
Settling Ponds	180.00	36.10	26.00	30,750.00
TOTALS:	303.47	111.99	96.09	$352,650.00

* These two areas have not had surface development.

In January 1986 Sunshine Mining Company submitted a tailings pond modification plan ACT/049/009. Total estimated disturbed acres for these ponds were 10.01 acres and total reclamation cost's were estimated at $17,450.00. No surface work to complete these ponds has been started to date nor is any considered at this time. Current

active permitted areas, at our operations, include:

Permit Area	Reclamations Cost (est.)	BONDED	CURRENTLY DISTURBED
Trixie	$ 37,320.00	11.4	3.8
Apex No. 2	67,570.00	2.8	2.0
Burgin Mill	129,600.00	57.9	0
Settling Ponds	30,750.00	180.0	10.1
TOTAL:	$265,242.00		

No additional work on any of the other permitted areas has commenced or been started to date. Sunshine currently has a $737,000 surety bond to cover all reclamation costs and is not actively utilizing two (2) of the permitted areas, the Hunter shaft and the tailings pond.

We are requesting the bond amount assigned to the proposed Hunter Shaft site be reassigned to the Zuma pit area. The Hunter shaft will not be constructed per Sunshine's current feasibility study for the "New Burgin Mine." Current plans call for utilizing the existing Burgin No. 2 shaft to provide access to the orebody and the Hunter shaft with associated surface complex will not be constructed so the bond for this area should not be required. The reclamation bond currently assigned to the proposed Hunter shaft is $48,100.00.

The legal description for the above permitted areas are as follows:

TRIXIE:
NE 1/4 Sec. 28, T.10S., R.2W. SLM;
Approximately 1150 feet west and 750 feet south of the NE corner of Sec. 28, T.10S., R.2W.

HUNTER SHAFT:
SE 1/4 Sec. 15, T.10S., R.2W. SLM;
Approximately 2250 feet west and 1500 feet north of the SE corner of Sec. 15, T.10S., R.2W., SLM.

BURGIN MILL:
SE 1/4 Sec. 15, T.10S., R.2W., SLM;
Approximately 1100 feet west and 500 feet north of the SE corner Sec. 15, T.10S., R.2W., SLM.

TAILINGS POND:
N 1/2 Sec. 14, T.10S., R.2W., SLM;
Approximately 4500 feet east and 1200 feet south of the NW corner Sec. 14, T.10S., R.2., SLM.

SETTLING PONDS:
NE 1/4 Sec. 18, T.10S., R.1W., SLM;
Approximately 1200 feet west and 1200 feet south of the NE corner Sec. 18, T.10S., R.2W.

Mining:

The clay will be produced from the existing Zuma pit which has had previously halloysite clay production during the early 1970's. The clay pit covers approximately seven (7) acres and planned mining will be within the existing pit boundaries. Part of the planned production will be from the existing waste rock dumps located along and near the west edge of the pit. The rest of the production will be excavated from existing pit walls, on the north side of the pit, and from the base of the pit. Rock will be broken by either drilling and blasting or utilizing a cat with a ripper to break the clay for shipment.

Mined material will be loaded and shipped directly to Ash Grove's plant site for crushing and processing. No on site preparation will be required before shipments are made.

Acres To Be Disturbed:

As previously stated, 40,000 - 60,000 tons of alumina clays are expected to be produced on an annual basis from this site. Operating under a exploration permit one additional access road was constructed under a "Permit to Conduct Exploration."

The existing pit and disturbed areas cover approximately 6-7 acres. Future mining will be centered within the confines of this previously disturbed zone. With an estimated production rate up to 60,000 tons/year, a bench 25 feet high would be moved back and cover 0.77 acres during each year. All projected mining during a projected 10 year program would come from either the existing pit or mine dumps.

Revegitation:

Previous operators in the area did not save top soil or soil horizons. Work in the area to date, has not uncovered or defined any soils that could be saved for revegitation.

The proposed seed mix for ground cover at the site is:

Species	Pounds Live/Acre
Western wheatgrass (Appropyron smithi (Rosana)	3.0
Indian ricegrass (Oryzopsis hymenoides)	2.0
Sand dropseed (Sporobolus cryptandurs)	1.0
Yellow sweetclover (Melilotus officinalis)	2.0

This is the previously approved mix for revegitation at our other disturbed sites.

Drainage:

Sunshine Mining Company is requesting a variance for construction of a diversion ditch to divert the run on from a 100 year storm event.

The Zuma pit is situated where drainage will flow naturally away from and not into or through, the proposed areas to be disturbed by future mining. Above the pit a small knoll rises above the north highwall wall approximately 50 feet. The total acreage on this north knoll covers 0.52 acres and should not discharge run on volumes large enough during a 100 year storm event to require a diversion ditch in this area.

Highwalls:

Previous operators have left highwall slopes exceeding the 2 to 1 ratio preferred by the Division of Oil Gas and Mining. Ash Grove Cement West, Inc. furnished surveying personnel to document the pre-existing pit contour so future disturbance will not be confused with the existing pit features, (map enclosed). Proposed work within the pit will be directed along the pit bottom to develop and mine the clays. Minimal work along the north highwall may take place on a intermittent basis to trim clay from the wall.

The existing south wall of the pit will remain the same with no active mining along its face due to the low quality of the material. Sunshine Mining Company is requesting the division grant a highwall variance be granted for the Zuma pit. We feel it will be impractical and not cost effective to lay the existing pit walls back to a 2 to 1 slope. To break the slope along the north wall, Sunshine proposes to cut a series of benches along the north wall. These benches will then be reseeded with a approved seed mix.

Soils:

Previous operators did not stockpile or save any soils from the disturbed areas in and associated with the pit. Removal and shipments of pre-existing waste rock dumps may expose the original soil horizons which will be revegitation. Any other soil horizons encountered in mining will be stockpiled in designated areas revegitated with an approved seed mix to provide stabilization until mining ceases and the soil is used for revegitation.

Sunshine Mining Company will use alfalfa hay mulch with seed mix to cover the slopes of haul roads and areas on haul pads that become inactive and any soils which may be stockpiled. The mulch will consist of alfalfa hay used at a rate of approximately 1 ton/acre to cover seeded areas. Ammonium nitrate fertilizer will be applied at a rate of 80/100 lbs. per acre on all reseeded areas. The mulch seed mixture and fertilizer will then be disked to a depth of 2" to 3" to prevent wind erosion, where slope angles will not present necessary risk to equipment operators.

No vegetation transect has been taken across either of these dumps but I have attached a copy of the transects across our proposed tailings ponds which have similar ground cover along with photographs of the existing vegetation in the area of the pit, Exhibit A.

Estimated Reclamation Costs for Zuma Pit:

heavy equipment 4 days @ $90.00/hr.	$ 2,880.00
3 man clean-up crew 1 day @ $25.00/hr.	600.00
reveg. eng. 2 days @ $35.00/hr.	560.00
revegatation of 7 acres @ $1,000/acre	7,000.00
	$11,400.00

Ground Water:

Two pre-existing shafts are closely located near the pit area. The Iron King No. 1 shaft bottom elevation was 4737 feet with a total depth of 1545 feet. The Zuma shaft had a total depth of 1210 feet and bottomed at a elevation of 4918 feet with no aquifers intersected in either shaft. The water table in this area is projected to an elevation of 4558 feet from other shafts located in the surrounding area. No springs or wells are located in the area of the mine dumps or pit and this proposed work should not impact on any ground water.

Soils:

The alumina clay material is located on soils identified as PK, Soil Survey of Fairfield - Nephi Area, Utah.

Maps:

One inch = 30 feet surveyed map of the Zuma clay pit is included in this report.

3. Vegetation Transects

100' Line Intercepts with 1000 intervals

Tailings Pond

Item	Intervals			% of Total		
Transects	A-1	A-2	A-3	A-1	A-2	A-3
Bare	379	405	214	37.9	40.5	21.4
Litter	421	321	414	42.1	32.1	41.4
Rock	1	10	0	0.1	1.0	0.0
Hilaria jamesii	53	0	6	5.3	0.0	0.6
Oryzopsis hymenoides	0	12	0	0.0	1.2	0.0
Bromus tectorum	74	105	294	7.4	10.5	29.4
Chrysothamnus viscidiflorus st.	85	17	51	8.5	1.7	5.1
Lepidium perfolatum	1	30	36	0.1	3.0	3.6
Total Understory	213	166	387	21.3	16.6	38.7
less Bromus tectorum	139	61	93	13.9	6.1	9.3
Artemisia tridentata	405	337	78	40.5	33.7	7.8
Chrysothamnus viscidiflorus	0	0	85	0.0	0.0	8.5
Total Overstory	405	337	163	40.5	33.7	16.3

Total Understory Average	25.5%
less Bromus tectorum	9.8%
Total Overstory Average	30.2%
Total Cover Average	55.7%

Glenn Mellor
Sunshine Mining Co.
Box 250
Eureka, UT 84628
Ph.: 433-6854
PO EU 5943
Zuma Pit Soils
May 23, 1991

Von Isaman
NPI Soil Testing/
Plant Analysis Laboratory
417 Wakara Way
Salt Lake City, UT 84108
Ph.: 582-0144
Fax: 583-2945

Name	pH	EC mmhos/cm	% Organic Matter	NO_3N ppm	P ppm	K ppm	SAR	% Sand	% Silt	% Clay	Textural Classification
#1 North Wall	7.5	.3	.2	9	29	96	1.5	48	12	40	Sandy Clay
#2 E. End Upper Branch	7.7	.3	.2	7	6	205	1.1	60	8	32	Sandy Clay Loam
#3 Upper Dump	7.8	.7	.5	7	21	88	3.3	52	16	32	Sandy Clay Loam
#4 South Wall	3.5	.4	.1	6	6	37	.6	72	12	16	Sandy Loam
Agriculturally Acceptable Range -											
	6.0-8.4	<2.0	>2.0	>48	>11	>130	<3	-	-	-	-*
Topsoil Substitute Range -											
	6.0-8.4	<4	>.5	-	-	-	<6	-	-	-	-*

Name	% BS	EXS	CEC	% $CaCO_3$	S	AB Potential
#1 North Wall	77	6.0	27	1.0	.02	9
#2 E. End Upper Branch	106	1.4	29	4.1	.01	40
#3 Upper Dump	125	6.3	25	10.3	.07	100
#4 South Wall	9	.1	14	.1	.68	720
Topsoil Substitute Range	-	-	-	<30	-	-

*Not Clay, Silty Clay or Sand

Exhibit B